

Attorney Docket No. 24061.37
Customer No. 42717

Amendments To The Claims

Please cancel Claims 1 and 14-18 without prejudice. The following list of the claims replaces all prior versions and lists of the claims in this application.

Claim 1 (Cancelled).

2. (Currently amended) The capacitor device recited in ~~Claim 1~~ Claim 4 wherein the third electrode is located over the first and second electrodes.

3. (Currently amended) The capacitor device recited in ~~Claim 1~~ Claim 4 further comprising a third insulating layer located over the third electrode, wherein the first and second interconnects are located over the third insulating layer.

4. (Currently amended) ~~The capacitor device recited in Claim 1 wherein: A capacitor device, comprising:~~

a first electrode located over a substrate and connected to a first interconnect;
a first insulating layer located over the first electrode;
a second electrode located over the first insulating layer and connected to a second interconnect;
a second insulating layer located over the second electrode; and
a third electrode located over the second insulating layer and connected to the first interconnect;

wherein the first electrode and the first interconnect are connected by a first via; the second electrode and the second interconnect are connected by a second via; and the third electrode and the first interconnect are connected by a third via.

5. (Original) The capacitor device recited in Claim 4 wherein at least one of the first, second and third vias and at least one of the first and second interconnects are collectively a dual-damascene structure.

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6. (Currently amended) The capacitor device recited in Claim 1 Claim 4 wherein the first insulating layer includes an insulation layer and an etch stop layer located over the insulation layer.

7. (Currently Amended) The capacitor device recited in Claim 1 Claim 4 wherein a first perimeter of the first electrode envelopes a second perimeter of the second electrode the second electrode is within a perimeter of the first electrode when viewed in a direction perpendicular to the first and second electrodes.

8. (Currently Amended) The capacitor device recited in Claim 7 wherein the second perimeter envelopes a third perimeter of the third electrode the third electrode is within a perimeter of the second electrode when viewed in a direction perpendicular to the second and first electrodes.

9. (Currently amended) The capacitor device recited in Claim 1 Claim 4 wherein the first electrode comprises copper.

10. (Currently amended) The capacitor device recited in Claim 1 Claim 4 wherein the second and third electrodes each comprise a same one selected from the group consisting of:

tungsten;
tungsten silicide;
aluminum;
titanium; and
titanium nitride.

11. (Currently amended) The capacitor device recited in Claim 1 Claim 4 wherein the second and third electrodes each include a plurality of conductive layers.

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12. (Currently amended) The capacitor device recited in Claim 1 Claim 4 wherein a total unit capacitance of the capacitor device ranges between about 1.3 fF/ μ m² and about 2.0 fF/ μ m².

13. (Currently amended) The capacitor device recited in Claim 1 Claim 4 wherein a total unit capacitance of the capacitor device is about 1.5 fF/ μ m².

Claims 14 to 18 (Cancelled).

19. (Currently amended) A semiconductor device, comprising:
a transistor element located over a substrate and having a contact;
a capacitor element, including:
 a first electrode located over the substrate;
 a first insulating layer located over the first electrode;
 a second electrode located over the first insulating layer;
 a second insulating layer located over the second electrode; and
 a third electrode located over the second insulating layer;
a dielectric layer located over the transistor element and the capacitor element;
a first interconnect located over the dielectric layer, coupled to the first electrode by a first via, and coupled to the third electrode by a second via; and
a second interconnect located over the dielectric layer, coupled to the second electrode by a third electrode by a third via, and coupled to the transistor contact by a fourth via.

20. (Original) The semiconductor device recited in Claim 19 wherein the first interconnect and the first and second vias are collectively a dual-damascene structure.

21. (Original) The semiconductor device recited in Claim 19 wherein the second interconnect and the third and fourth vias are collectively a dual-damascene structure.

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22. (Original) The semiconductor device recited in Claim 19 wherein the first insulating layer includes an insulation layer and an etch stop layer located over the insulation layer.

23. (Original) The semiconductor device recited in Claim 19 wherein the first electrode comprises copper.

24. (Original) The semiconductor device recited in Claim 19 wherein the second and third electrodes each comprise a same one selected from the group consisting of:

tungsten;
tungsten silicide;
aluminum;
titanium; and
titanium nitride.

25. (Original) The semiconductor device recited in Claim 19 wherein the second and third electrodes each include a plurality of conductive layers.